

What is claimed is:

1 ^{5.1881}
2 In a system for encoding video image data with at least first and second encoding passes,
3 where each encoding pass includes a number of executable steps and at least one of said
4 executable steps includes a number of executable first order sub-steps, a method for encoding
5 video image data comprising:
6 (a) identifying first order sub-steps in at least one of said first and second encoding
7 passes as being necessary or unnecessary for execution of said encoding passes; and
(b) executing said necessary sub-steps during said first and second encoding passes.

1 2. The method of claim 1 wherein in said identifying step, all of said first order sub-steps in
2 said first and second encoding passes are identified as being necessary or unnecessary for
3 execution of said encoding passes.

1 3. The method of claim 1 wherein at least one of said first order sub-steps includes a
2 plurality of executable second order sub-steps, wherein after step (a), said method further
3 comprising:

4 (a₂) identifying second order sub-steps in at least one of said first and second encoding
5 passes as being necessary or unnecessary for execution of said encoding passes.

1 4. The method of claim 3 wherein in step (a₂), all of said second order sub-steps in said first
2 and second encoding passes are identified as being necessary or unnecessary for execution of said

2207/6039

Express Mail No. EL088529033US

3 encoding passes.

1 5. The method of claim 3 wherein at least one of said executable first order sub-steps
2 includes a plurality of n-1 order sub-steps and at least one of said n-1 order sub-steps includes a
3 plurality of executable n order sub-steps where n is an integer greater than or equal to three,
4 wherein after step (a₂), said method further comprising:

5 (a_n) identifying n-1 order sub-steps in at least one of said first and second encoding
6 passes as being necessary or unnecessary for execution of said encoding passes.

1 6. The method of claim 5 wherein in step (a_n), all of said n order sub-steps in said first and
2 second encoding passes are identified as being necessary or unnecessary for execution of said
3 encoding passes.

1 7. ⁵⁴³³² A set of instructions residing in a storage medium, said set of instructions capable of
2 being executed by a processor to implement a method for encoding video image data with at least
3 first and second encoding passes, where each encoding pass includes a number of executable
4 steps and at least one of said executable steps includes a number of executable first order sub-
5 steps, such that first order sub-steps in at least one of said first and second encoding passes are
6 identified as being necessary or unnecessary for execution of said encoding passes, the method
7 comprising:

8 (a) executing said necessary sub-steps during said first and second encoding passes.

2207/6039

Express Mail No. EL088529033US

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1 8. The set of instructions of claim 7, wherein in said identifying step, all of said first order
2 sub-steps in said first and second encoding passes are identified as being necessary or
3 unnecessary for execution of said encoding passes.

1 9. The set of instructions of claim 7, wherein at least one of said first order sub-steps
2 includes a plurality of executable second order sub-steps, wherein second order sub-steps in at
3 least one of said first and second encoding passes are identified as being necessary or
4 unnecessary for execution of said encoding passes.

1 10. The set of instructions of claim 9, wherein all of said second order sub-steps in said first
2 and second encoding passes are identified as being necessary or unnecessary for execution of said
3 encoding passes.

1 11. The set of instructions of claim 7, wherein at least one of said executable first order sub-
2 steps includes a plurality of $n-1$ order sub-steps and at least one of said $n-1$ order sub-steps
3 includes a plurality of executable n order sub-steps where n is greater than or equal to three,
4 wherein $n-1$ order sub-steps in at least one of said first and second encoding passes are identified
5 as being necessary or unnecessary for execution of said encoding passes.

2207/6039

Express Mail No. EL088529033US

1 12. The set of instructions of claim 11, wherein all of said n-order sub-steps in said first and
2 second encoding passes are identified as being necessary or unnecessary for execution of said
3 encoding passes.

1 13. A system for encoding video image data with at least first and second encoding passes,
2 where each encoding pass includes a number of executable steps and at least one of said
3 executable steps includes a number of executable first order sub-steps, said first order sub-steps
4 in at least one of said first and second encoding passes being identified as necessary or
5 unnecessary for execution of said encoding passes, said system including:

6 a video compressor adapted to encode video image data during said at least first and
7 second encoding passes; and

8 a bit rate controller coupled to said video compressor and adapted to control said video
9 compressor during said at least first and second encoding passes, such that said video compressor
10 is adapted to execute said necessary sub-steps during said first and second encoding passes.

1 14. The system of claim 13 wherein said video compressor further comprises:

2 an encoder/decoder adapted to encode video image data during said at least first and
3 second encoding passes.

1 15. The system of claim 14 wherein all of said first order sub-steps in said first and second
2 encoding passes are identified as being necessary or unnecessary.

1 16. The system of claim 15 wherein at least one of said first order sub-steps includes a
2 plurality of executable second order sub-steps and said second order sub-steps are identified as
3 necessary or unnecessary.

1 17. The system of claim 15 wherein all of said second order sub-steps in said first and second
2 encoding passes are identified as being necessary or unnecessary.

1 18. The system of claim 16, wherein at least one of said executable first order sub-steps
2 includes a plurality of $n-1$ order sub-steps and at least one of said $n-1$ order sub-steps includes a
3 plurality of executable n order sub-steps where n is an integer greater than or equal to three, and
4 $n-1$ order sub-steps are identified in at least one of said first and second encoding passes as being
5 necessary or unnecessary.

1 19. The system of claim 18 wherein all of said n order sub-steps in said first and second
2 encoding passes are identified as being necessary or unnecessary.